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NOTES ABOUT THE DREPANOCLOADI OF THE VICINITY OF MONTREAL, QUEBEC, CANADA

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The *Drepanocлади* C. M., formerly known as *Harpidia* Sull., are an interesting and considerable section of the true *Hypna* with a decided preference for an aquatic habitat. The contributions of the late F. Renauld to the Revue Bryologique (1906-1909) and the works of Warnstorf and other German bryologists have of late created a lively interest in these plants. Still, one may wonder why they seem to be rarely collected, or at least rarely discussed in our reviews. May we be allowed to offer an explanation for this seeming neglect?

Drepanocлади, indeed, present peculiar difficulties to collectors, difficulties which may be due to these two reasons: the plants are difficult of access, and not very easily found. They grow, most of them, in wet meadows, marshy places, or deep peat bogs. On this account a special outfit (as rubber boots) and a

good deal of enterprise due to particular attraction toward such habitats, is required by the collector. The amateur who decides to visit such places must be ready to pass for a crazy fellow, or at the best, for an eccentric.

Next, there is the difficulty of coming to the right spot at the right time in order to secure these plants to best advantage. If one arrives too early, one is apt to find nothing save water in these ponds or marshy spots; at best only a rudimentary growth of moss will be there. If one comes too late, the grasses and other plants will have choked or replaced the aquatic mosses. The collecting of fine specimens, therefore, remains a chance affair unless one lives near enough to the spot to watch the plants and to collect them when at their best. Of course, chances are more favorable in the thick woods, yet some species prefer to grow in the open sunshine of the meadows. In the vicinity of Montreal, the best time to collect *Drepanocladia* seems to be from the first of May until the end of June; sometimes a bit sooner or later as the spring may be more or less advanced according to the season.

To the fraternity we beg to submit the following account and partial list of the *Drepanocladia* more frequently met with in the vicinity of Montreal. We shall use here the divisions and groups recommended by Renaud in his treatment of the *Harpidia* in Husnot's *Muscologia Gallica*.

I. *Drepanocladus aduncus* Hedw.

(a). Group *typicus* Renaud, comprises mosses of small or middling size, with strongly second leaves, and with more or less hooked apices to the stems; the hyaline auricles clearly separated.

Var. *tenuis* Ren. is a delicate moss in springy or very moist places, of a greenish-yellow aspect. It is rather local, but abundant at Oka, P. Q., in springy rivulets.

Var. *falcatus* Ren. forma *subpiligera* Ren. is a plant of middling size with a greenish yellow aspect and is quite common everywhere in moist woods and in drying ponds in meadows. It is very near the var. *gracilescens* which it seems to replace here, and from which it differs in the long, slender apex of the stem leaves. Of late this plant has been called *D. subpiligerus* (Ren.) Roth.

Var. *aquaticus* Sanio, is larger than the preceding, finely straw colored, and differs mostly in the apex of the stems, which are arched rather than hooked, and in the distant, scarcely second stem leaves. It is found abundantly in the vicinity of Montreal in wet argillaceous meadows, but seems to require plenty of sunshine and air, and to be rather local, as it has not been reported save as above mentioned.

(b). Group *Kneiffii* Renaud, contains mosses with the leaves scarcely second, the stem apices straight, not hooked (at least in the following varieties), the auricles not clearly defined.

Var. *polycarpon* Blandow, of a dark green aspect has stem leaves short, oval and spreading. It occurs in furrows of argillaceous meadows in the vicinity of Montreal.

Var. *intermedius* Bry. Eur., has the stem leaves longer, distant, and appressed; the stems bright yellow and firm. It is of about the same habitat as the var. *aquaticus* in the vicinity of Montreal, though both varieties seem to be local and rare.

(c). Group *pseudofluitans* Renaud. These are the largest mosses of the *adunci*, with leaves scarcely or not at all secund, the stem apices generally straight and convolute.

Var. *paternus* Sanio, (= *D. pseudofluitans* Warnst.). This is the coarsest of the group, with deep green leaves, the stem apices upright, convolute, the leaves not appressed nor secund save in dried-up ponds, the leaf apices very long and loriform, and the auricles not distinctly separated. It is common in marshy woods, often with *D. capillifolius* which it resembles somewhat, except that the costa in *paternus* is narrow and not percurrent.

Var. *flexilis* Renaud. This is more delicate than the preceding, with more the aspect of *Amblystegium riparium*, but the auricles are very distinct. It is very variable in its aspects; Dr. Roth thought it not a good variety and referred it to *Amblystegium riparium*, but this view is hardly consistent with the very distinct auricles of *flexilis*. It is rare and local.

II. *Drepanocladus capillifolius* Warnst.

(a). Forma *typica* Warnst. has very long, narrow leaves, a strong and excurrent costa, and a "woolly" aspect. It is very common in moist woods, ditches, and like places.

(b). Var. *fallax* Renaud, or forma *fallax*, as Renaud called it first, has the *upper* stem leaves secund with a hardly percurrent costa, but in the *lower* older stem leaves the costa is long-excurrent as in forma *typica*. Indeed, this moss, which is most common in open meadows, seems to be only a form brought about by the sudden and rapid dessication of the ponds and ditches. It abounds in the Montreal meadows and vicinity.

(c). Var. *brachydictyon* Renaud, is a smaller plant, with spreading shorter leaves, an excurrent or percurrent costa. It has been found so far only in a marshy brook at Oka, P. Q.; rare. According to Renaud our American *capillifolii* are much more variable than the European; the discovery of the forma *fallax* was a big surprise to him.

III. *Drepanocladus uncinatus* Hedwig. This is a very common plant with a sub-percurrent costa and circinate serrate leaves, which distinguish it at once from the preceding species in which the leaf apex is smooth. It is found in rather dry situations, on old stumps and rocks; very common. It must not be mistaken for *Hypnum Patientiae* (our American form of *H. arcuatum*) which is without a costa or with a double slender one.

IV. *Drepanocladus fluitans* L. The most common form here of the species seems to be the var. *Jeanbernati* Renaud, a fine-looking yellow moss, with leaves distinctly serrulate (more strongly at apex) and more or less secund, especially at the tips of the stems. It is rather infrequent and local, but occurs in ponds among siliceous rocks at Rigaud, P. Q.

V. *Drepanocladus revolvens* Sw. var. *intermedius* (Lindb.) Ren. a very fine looking moss with nicely curled or circinate leaves, occurs in a deep peat bog at Oka, P. Q. in company with *Hypnum stellatum*.

VI. *Drepanocladus scorpioides* L. occurs in the same habitat as the preceding, growing with *Hypnum giganteum*. It has stout stems which are slightly secund.

SEMINARY OF PHILOSOPHY, MONTREAL, CANADA.

JOHN MACOUN

A. LEROY ANDREWS

The following biographical facts represent a brief abstract of a memoir prepared by W. T. Macoun, sole surviving son of the deceased, for publication in the Canadian Field Naturalist, for a manuscript copy of which I am indebted directly to Dr. Jennings and through him to the author.

John Macoun, long known to botanists as Naturalist to the Geological Survey of Canada, died on July 18, 1920, in his ninetieth year, his older son, James M. Macoun, for many years associated with him in the botanical work of the Canadian Geological Survey, having died a few months before him. The older Macoun was Scotch-Irish, born at Maralin in the vicinity of Belfast. In 1850 his family migrated to Canada, settling in the forest-region of Ontario, where they cleared a farm. The future botanist began his career by teaching in a country school, and after a course in a Normal School became head of the public schools in Belleville, Ontario, with which place much of his early botanical activity is associated. In 1874 he was appointed Professor of Botany and Geology in Albert College, Belleville, in 1881 Botanist to the Dominion Government, by which he had already been engaged for part of his time since 1872, in 1887 Assistant Director and Naturalist of the Geological Survey, which last position he held until his death, though he retired from active official duties in 1912.

His botanical collecting was in many respects pioneer work and has contributed in no little degree to the clearing up of facts of plant-distribution in British America. In 1872 he was botanist of the Fleming expedition, whose problem was to explore a route for the Canadian Pacific railway; in 1875 he was botanist with the Selwyn expedition to the Peace River region and the Rockies; in 1879, 1880, and 1881 he further explored the prairie region of the northwest and became an enthusiastic prophet of its future wheat-growing possibilities; in 1905 he made his way along the route of the Grand Trunk Pacific railway to the Yukon Territory. In fact in the years (1882-1912) of his residence at Ottawa he was nearly every summer engaged in collecting and exploring in some part of British America. During the last years of his life he was still busily occupied with botanical observations on Vancouver Island.

The record of his botanical collections, so far as at present accessible, is to be found in his "Catalogue of Canadian Plants," published in seven parts from